

3. RECORDKEEPING REQUIREMENTS

3.1 Industrial Hygiene and Radiological Monitoring Records

The Industrial Hygienist (IH) will record airborne monitoring and sampling data (both area and personal) on the INEEL Hazards Assessment and Sampling System (HASS). All IH monitoring and sampling equipment will be maintained and calibrated per INEEL procedures and the manufacturer's specifications. Industrial hygiene airborne monitoring and sampling data are treated as limited access information and maintained by the IH. Any airborne monitoring or sampling done by non-IH or nonsafety personnel will be documented in a project-controlled logbook, and will be reviewed by the IH.

The RCT maintains a daily logbook of radiological monitoring,. Radiological instrumentation daily response checks are completed and recorded in accordance with applicable MCPs or technical procedures (TPRs).

Project personnel, or their representative, have a right to request both IH and RCT monitoring and sampling (both area and personal) data.

3.2 Project and Site Attendance Logbooks

The FCC will maintain a project logbook and will record daily project events in the logbook. The FCC will maintain a project attendance logbook and will record in the logbook all personnel, both workers and nonworkers, who were onsite each day. Logs and reports will be submitted to the BBWI Administrative Record and Document Control (ARDC) office (located in the Technical Support Building [TSB]). Logbooks must be obtained from ARDC. Logbooks will be maintained according to MCP-231, "Logbooks for ER and D&D&D&D Projects."

3.3 Administrative Record and Document Control Office

The ARDC will organize and maintain data and reports generated by ER field activities. The ARDC maintains a supply of all controlled documents and provides a documented system for the control and release of controlled documents, reports, and records. Copies of the management plans for the Environmental Restoration (ER) program, this HASP, the quality program plan for the ER (PLN-125), the QAPjP, and other documents pertaining to this work are maintained in the project file by the ARDC. All project records and logbooks, except IH and RCT logbooks, must be forwarded to ARDC within 30 days after completion of field activities.

4. PERSONNEL TRAINING

All site personnel will receive training as specified in OSHA 29 CFR 1910.120/1926.65. Specific requirements for personnel requiring access to project sites may vary, depending on the hazards associated with their individual job assignment and required access into established controlled areas. Table 4-1 lists project-specific training (not all potential TAN or other general BBWI training that may be required for personnel is included).

4.1 General Training

Proof that all required site-specific training has been completed (including applicable refresher training) must be maintained or be available electronically at the site. Examples of acceptable written training documents include 40-hour OSHA HAZWOPER card, respirator authorization card, DOE certificate of core radiological training II card, medic/first aid training card, and/or a copy of an individual's or department's (BBWI personnel only) Training, Reporting, and Information Network (TRAIN) system printout demonstrating completion of training. For subcontractor personnel, a copy of a certificate/card issued by the institution where the site-specific required training was received is also acceptable proof of training. The DOE radiological worker (RW) training must include INEEL site-specific training.

4.2 Site-Specific Project Training

Before personnel begin work at the task site, they will receive project site-specific training from the FCC or designee. This training will consist of a complete review of a controlled copy of the project HASP, applicable job safety analyses (JSAs), safe work permits (SWPs) if required, technical procedures (TPRs) and other applicable work control/authorization documents with time for discussion and questions. Site-specific training can be conducted in conjunction with the required formal pre-job briefing (MCP-3003, Performing Pre-Job Briefing and Post-Job Reviews) or separately.

At the time of HASP training, personnel training records will be checked and verified to be current and complete for all required training shown in Table 4-1. Once the FCC or designee has completed site-specific training, personnel will sign a training roster indicating that they have received this training, understand the project tasks and associated hazards/mitigation, and agree to follow all HASP and all other applicable work control and safety requirements. The FCC or HSO will monitor each newly trained (24-hour or 40-hour) worker's performance to meet the 1 day or 3 days of supervised field experience, respectively, in accordance with 29 CFR 1926.65(e). Form 361.47 or equivalent will then be completed to document the supervised field experience. (Form 361.47 or equivalent training forms are available on the INEEL Intranet under "Forms.") Supervised field experience is only required if the worker has not previously completed this training (documented) at another CERCLA site or the worker is upgrading from 24-hour to 40-hour HAZWOPER training. A copy must be kept at the project site or be electronically available as evidence of training.

Training forms (Form 361.47 or equivalent) must be submitted to the training coordinator for inclusion in the TRAIN system within 5 working days of completion. TPR-167 documents training required for specific OU 1-07B work activities.

Table 4-1. Required site-specific project training for site personnel.

Training	FTL, FCC, HSO, and JSS	Other Field Team Members (Including Operators and Samplers)	Support Personnel ^a Requiring Access Beyond the SZ	Visitors
40-hr HAZWOPER ^b	Y	Y	As needed ^a	
24-hr HAZWOPER ^c			Y ^d	
8-hr HAZWOPER Site Supervisor	Y			
HAZWOPER Supervisor	Y			
Site-Specific HASP Training ^e	Y	Y	Y ^f	Y ^f
RW II (except RCTs) ^g	Y	Y	Y ^d	
Hearing Conservation Training ⁱ	Y	Y		
Confined Space Entrant/Attendant Training ⁱ	Y	Y		
CPR/Medic First Aid ^h	Y			
Respirator Training ^j	Y	Y		
HAZMAT Employee Field Support General Awareness	Y	Samplers only		
Area Warden Training	FCC			
Fire Extinguisher Training	Y	Operators only		
TAN Access Training	Y	Y	Y	Y ^f

- Shaded fields indicate specific training is not required

- a. Support personnel typically include RCTs, equipment operators, laborers, mechanics; training needs will be determined by the FCC and depend on the area to be accessed.
- b. 40-hr HAZWOPER required training will include an additional 24 hours of HAZWOPER supervised field experience as required by 29 CFR 1910.120(e). This field experience for this project will be documented on Form #361.47 (or equivalent form).
- c. 24-hr HAZWOPER will include an additional 8 hours of HAZWOPER supervised field experience as required by 29 CFR 1910.120(e). Field experience will be documented on Form 361.47 (or equivalent).
- d. Minimum requirements for exclusion zone (EZ) or contamination reduction zone (CRZ) access (HSO approval also required).
- e. Includes project-specific HAZCOM, site-access/security, decontamination and emergency response actions as required by 29 CFR 1910.120(e). Pre-job and post-job review (MCP-3003) and stop work per MCP-553 and PRD-1004.
- f. Visitor is escorted by a trained field team member.
- g. If radionuclides are detected or anticipated at contamination or radiation levels requiring posting/RW training in accordance with the INEEL Radiological Control Manual is required.
- h. Need two cardiopulmonary resuscitation (CPR) personnel on site at all times.
- i. As required, based on project duties and project zone access requirements.
- j. If entering areas requiring respirator use, training to specific type of respiratory protection required (i.e. full face negative air purifying respirator, PAPR, airline with escape capability or SCBA).

4.3 Pre-Job Briefing and Lessons Learned

A daily POD meeting will be conducted by the FCC or designee, with other field team members contributing (HSO and RCT, as applicable). During this meeting, daily tasks are to be outlined, hazards identified, hazard controls/mitigation and work zones established, PPE requirements discussed, and employees' questions answered. At the completion of this meeting, any new work control documents will be read and signed (e.g., SWPs, radiological work permits [RWPs], JSA). Particular emphasis will be placed on lessons learned from the previous day's activities and how tasks can be completed in the safest, most efficient manner. All personnel will be asked to contribute ideas to enhance worker safety and mitigate potential exposures at the project sites. POD attendees are to sign an attendance roster. POD rosters will be stored in the FCC logbook or in a binder containing prejob briefing forms (Form 434.15).

5. OCCUPATIONAL MEDICAL SURVEILLANCE PROGRAM

Per DOE Order 5480.8a and OSHA 29 CFR 1910.120/1926.65, the WAG 1 project personnel will participate in the INEEL OMP. As required, medical surveillance examinations will be provided before assignment, annually, and after termination of hazardous waste site duties or employment. This includes personnel who are or may be exposed to hazardous substances at or above the OSHA permissible exposure limit (PEL) or published exposure limits, without regard to respirator use, for 30 or more days per year. Personnel who wear a respirator to perform their job or who are required to take respirator training to perform their duties under this plan must participate in the medical evaluation program for respirator use at least annually, as required by 29 CFR 1910.134.

Exposure monitoring results furnished by the IH will be supplemented or updated annually, as long as the employee is required to maintain a hazardous waste/hazardous material employee medical clearance.

The OMP physician or subcontractor medical representative will evaluate the physical ability of an employee to perform the work. The physician may impose restrictions on the employee by limiting the amount or type of work performed.

5.1 INEEL OMP

The OMP physician will evaluate the physical ability of a BBWI employee to perform the work assigned, as identified in the site HASP or other job-related documentation. A documented medical clearance (physician's written opinion) will be provided to the employee and line management stating whether the employee has any detected medical condition that would place him or her at increased risk of impairment of his or her health from work in hazardous waste operations, emergency response, respirator use, and confined space entry (as applicable). The physician may impose restrictions on the employee by limiting the amount and or type of work. Exposure monitoring results furnished by the IH will be supplemented or updated annually as long as the employee is required to maintain a hazardous waste/hazardous material employee medical clearance.

5.2 Subcontractor OMP

Subcontractor project personnel will participate in a subcontractor medical surveillance program that satisfies the requirements of OSHA 29 CFR 1926.65. This program must make available medical examinations (1) before assignment, (2) annually, and (3) after termination of hazardous waste duties. The physician's written opinion will serve as documentation that subcontractor personnel are fit for duty.

The results of the subcontractor's employee medical surveillance program will be made available to the OMP, upon request. Also, subcontractor employees' past radiation exposure histories must be submitted to the INEEL radiation dosimetry and records section, in accordance with the INEEL *Radiological Control Manual*, MCP-188, "Issuing of TLDs and Obtaining Personnel Dose History," MCP-2381, "Personnel Exposure Questionnaire," and PRD-3001, "Radiological Control Requirements for INEEL Construction."

5.3 Injuries on the Project

It is INEEL policy to have an OMP physician examine all injured personnel. Employees who are injured on the job or who experience signs and symptoms consistent with exposure to a hazardous material must be sent to the medical facility for examination and treatment, as needed. If there is reason

to believe an employee has been exposed to toxic substances or physical or radiological agents in excess of allowable limits, that employee must be sent to the medical facility for examination and any needed treatment.

Subcontractor employees will be taken to the closest INEEL medical facility to have an injury stabilized before transport to the subcontractor's treating physician or medical facility.

If a known or suspected injury or illness is due to exposure to a hazardous substance or physical or radiological agent, the employee(s) will be transported to the nearest INEEL medical facility for evaluation and treatment, as necessary. The FTL or FCC is responsible for obtaining as much of the following information as is available to accompany the individual to the medical facility without delaying or impeding the employees receipt of medical attention:

- Name, job title, work (site) location, and supervisor's name and phone number
- Substance(s), physical or radiological agent(s) exposed to (known or suspected), material safety data sheet (MSDS), if available
- Nature of the incident, injury, or exposure and related signs or symptoms of exposure
- First aid or other measures taken
- Locations, dates, and results of any airborne exposure monitoring and/or sampling
- PPE in use during this work (for example, type of respirator and cartridge used).

As soon as possible after an injured employee has been transported to the INEEL medical facility, the FTL or FCC, or designee, will make notifications as indicated in Section 11 of this HASP. The treating/examining physician will determine if further medical evaluation is necessary according to the signs and symptoms observed, hazard involved, exposure level, and specific medical surveillance requirements established by the OMP director in compliance with 29 CFR 1910.120/1926.65.

RADCON personnel will evaluate all actual and/or suspected abnormal radiological exposures in excess of allowable limits and will establish the followup actions. For internal uptakes (as calculated committed effective dose equivalent values), engineering design file (EDF)-INEL003, "Established Levels of Radionuclide Intake for Consideration of Medical Intervention," will be used as the basis for this evaluation and followup actions. A physician will examine wounds to determine the nature and extent of the injury. The physician and RADCON will determine if the wound can be bandaged adequately for entry into a radiological contamination area in accordance with Article 542 of the INEEL *Radiological Protection Manual* (PRD-183 Radiation Protection—INEEL Radiological Control Manual).

5.4 Substance-Specific Medical Surveillance

Currently there are no contaminants of concern (COCs) at the WAG 1 V-tank project that would potentially require additional substance-specific regulatory medical surveillance. Based on engineering and administrative controls, worker training, the materials present, and the amount of contaminants present in the waste matrix, no occupational exposure approaching any action limit are anticipated. Should specific task assessments indicate possible exposures to COCs. Should substance-specific task assessments indicate possible exposures to COCs, substance-specific medical surveillance will be evaluated at that time.

6. ACCIDENT PREVENTION PROGRAM

The TAN activities present numerous chemical, radiological, and physical hazards to personnel conducting the required tasks. It is critical that all personnel understand and follow the task-specific requirement of this HASP. Engineering controls, hazard isolation, specialized work practices, and the use of PPE will be implemented to eliminate or mitigate potential hazards and exposures. However, all people on the site must know their role in the identification and control of hazards.

6.1 Integrated Safety Management and Voluntary Protection Program

The Integrated Work Control Process (IWCP) is the method by which the ISMS, Enhanced Work Planning (EWP), and VPP are implemented for maintenance and construction work activities. It provides a single process for all maintenance and construction work at the INEEL. It ensures that the work is screened consistently to uniform criteria and that hazards are appropriately identified, analyzed, and controlled. All OU 1-07B project work will be completed in accordance with STD-101, MCP-3562, and/or this HASP, to assure compliance with the principles of both VPP and ISMS.

6.1.1 Integrated Safety Management System

The ISMS has five core functions:

- Define the scope of work
- Analyze hazards
- Develop/implement controls
- Perform work within controls
- Provide feedback/improvement.

These five core functions are being implemented through the IWCP by the following steps:

- Identify the need to do work
- Determine category of the work (e.g., maintenance related, Type 1, 2, 3 work order)
- Analyze hazards
 - Preapproved hazard analysis
 - Hazards identification and mitigation checklist
 - Facility hazards list
 - Walkdown checklist
- Determine planning level (low/medium/high level)
- Develop work control packages

- Conduct workability walkdown/prejob briefing (perform the work)
- Conduct postjob review
- Document and close out the work, lessons learned/history file.

6.1.2 Voluntary Protection Program

The INEEL safety process embraces the VPP criteria, principles, and concepts. All levels of management are responsible for implementing safety policies and programs and for maintaining a safe and healthful work environment. Project personnel and subcontractors are expected to take a proactive role in preventing accidents, ensuring safe working conditions for themselves and fellow personnel, and complying with all work control documents and approved procedures.

The VPP is a process that promotes and encourages continuous safety improvement. The VPP is not a requirement of any regulatory agency. The management and operations (M&O) contractor and subcontractors participate in VPP voluntarily for the safety of their employees. The VPP incorporates five key elements:

- Management Commitment to safety and health is demonstrated through management visibility in the workplace and providing the necessary resources.
- Employee Involvement means that employees have an active and meaningful role in contributing to the structure and operation of the safety and health program. This involvement results in ownership of the safety and health program by all employees.
- Work Site Analysis includes analysis of new facilities and processes, comprehensive safety and health surveys, routine self-assessments, a reliable system for employees to report hazards, and an accident/incident investigation system and trend analysis.
- Hazard Prevention and Control means that written safety rules and safe work practices must be in place to eliminate and/or control hazards.
- Safety and Health Training is provided to all employees to ensure that they know what their responsibilities are and what is necessary to protect them from safety and health hazards.

6.2 General Safe Work Practices

OU 1-07B and subcontractor personnel working on the site shall follow general safe work practices while on site. All site visitors entering the site area must follow these same practices. Failure to follow these practices may result in permanent removal from the site and other disciplinary actions. The FCC and HSO are responsible for ensuring that the practices listed below are followed at the site:

- Limit access to authorized OU 1-07B, subcontractor, and visitor personnel only.
- All personnel have the authority to initiate **STOP WORK** actions. *INEEL Safety and Health Manual*, MCP-553, "Stop Work/Authority," and PRD-1004, "Stop Work Authority," will be used.

- Absolutely no eating, drinking, chewing gum or tobacco, smoking, applying cosmetics, or any other practice that increases the probability of hand-to-mouth transfer and ingestion of materials is allowed in exclusion or containment reduction zones. These activities are allowed in the support zone (see Section 7 for a description of these zones).
- Comply with all safety signs, color codes, and barriers. Adhere to INEEL *Safety and Health Manual 14A*, MCP-2714 and PRD-2022, "Safety Signs, Color Codes, and Barriers."
- Be alert for dangerous situations, strong or irritating odors, airborne dusts or vapors, and broken containers. Report all potentially dangerous situations to the FCC, FTL, or HSO.
- Avoid direct contact with potentially contaminated substances. Do not walk through spills or other areas of contamination. Avoid kneeling, leaning, or sitting on equipment or ground that may be contaminated.
- Be familiar with the physical characteristics of the site, including but not limited to:
 - Wind direction
 - Accessibility of fellow personnel, equipment, and vehicles
 - Communications at the site and with nearby facilities
 - Areas of known or suspected contamination
 - Major roads and means of access to and from the site
 - Nearest water sources and fire fighting equipment
 - Warning devices and alarms
 - Capabilities and location of nearest emergency assistance.
- Report all broken skin or open wounds to the HSO or FTL or FCC. An INEEL physician will determine if the wound presents a significant risk of internal chemical or radiological exposure. The OMP physician will consider how the wound can be bandaged and will recommend PPE to be worn by the injured employee. Personnel with unprotected wounds will neither be permitted to enter chemical or radiological control areas, nor to handle contaminated or potentially contaminated materials at the site without having been examined by an INEEL OMP physician.
- Prevent releases of hazardous materials, including those used at the site. If a spill occurs, try to isolate the source (if possible, and if this does not create a greater exposure potential), then report it to the FTL, FCC, or HSO. The TAN SS will be notified and additional actions taken as described in Section 11. Spill response kits, or other containment and absorbent materials, will be available and maintained at the site where needed.
- Avoid unnecessary and excessive movement during decontamination.

- Electrical equipment, wiring, cables, switches, and current overload protection will meet applicable regulations and will be maintained in a manner that protects project personnel from shock hazards and injury and prevents property damage. Ground-fault protection will be provided whenever electrical equipment is used.
- Personnel working in the EZ or controlled access zone will implement the buddy system (see Section 6.5 of this HASP).
- Proceed directly to a radiological survey station upon leaving a radiologically contaminated zone. Care should be taken not to touch the face, mouth, and eyes before a survey has been performed
- Personnel who wear contact lenses will comply with the INEEL Safety and Health Manual 14A, MCP-2716, and PRD-2001, "Personal Protective Equipment."

6.3 ALARA Principles

Personnel working at the task site must strive to keep radiation and chemical exposure ALARA through:

- Compliance with the STD-101 or MCP-3562 work control process
- Radiological work permit (RWP) and SWP compliance
- Radiation and chemical exposure limit awareness
- Adherence to all written radiological and chemical safety requirements and verbal guidance
- Awareness of personal radiation and chemical exposure history
- Working within ALARA guidelines and make suggestions as needed
- Minimizing production of all radioactive and chemically contaminated waste
- Minimizing personal radiation and chemical exposure by adhering to basic protection techniques.

6.3.1 External Radiation Dose Reduction

The specific radionuclides of concern are detailed in Table 8-2, in Section 8 of this HASP. Basic protective measures used to reduce external dose include minimizing time in radiation areas, maximizing the distance from the source of radiation, and using shielding whenever possible. Examples of methods to minimize external dose are listed below.

Methods for Minimizing Time in Radiation Areas

- Use mockups and practice runs during a cold test that will duplicate activities.
- Plan and discuss the tasks prior to entering radiation area (including having all equipment and tools prepared).

- Complete as much preparatory work as possible outside radiation areas and move to lower dose rate areas (as shown on the radiological survey maps) when not actively involved in the work scope.
- Take the most direct route to the project and work efficiently.
- If problems occur requiring technical discussions then hold discussions outside of radiation areas, when practical, and then return to work or relocate to areas of lowest dose rate to hold discussions.
- If personnel stay times are deemed necessary, each employee must know their individual stay time. Implement use of appropriate signals and/or communications to alert personnel when stay time is reached.
- Each employee should be aware of their current dose, allowable dose per job/task, and annual ALARA dose limit. Specific authorizations are required to exceed job-specific and annual dose limits.

Methods for Maximizing Distance from Sources of Radiation

- Use remote operational controls.
- Stay as far away from the source of radiation as possible (extremely important for point sources where, in general, if the distance between the source is doubled, the dose rate falls to $\frac{1}{4}$ the original dose rate).
- Know the most recent project radiological survey map high and low dose rate locations and take advantage of low dose rate areas.

Proper Use of Shielding

- Take advantage of the project equipment and enclosures for shielding employees from radiation sources.
- The use of safety glasses or an appropriate respirator will reduce eye exposure to beta radiation. The use of a respirator in conjunction with safety glasses requires properly fitted and company-issued safety glasses that can be worn inside a respirator.

Internal Radiation Dose Reduction

Radionuclide contamination at the project site could possibly cause an internal radiation dose. An internal dose is a result of radioactive material being taken into the body. Radioactive material can enter the body through inhalation, ingestion, absorption through wounds, or injection from a puncture wound. Reducing the potential for radioactive material to enter the body is critical to avoiding internal dose. The following methods can be used to minimize possibility of an internal uptake of radioactivity:

- Wear respiratory protection required for the task, perform all leak checks, and inspect all PPE prior to entering areas requiring respirator protection.

- Know the current and possible locations/sources of contamination at the job site. Minimize time and/or work in these areas to the extent practical.
- Utilize high-efficiency particulate air (HEPA) exhaust systems in conjunction with using glove boxes/boxes. (As required by RWP or IWCP).
- When inside contaminated areas, do not touch your face (adjust glasses or PPE) or other exposed skin.
- When exiting contaminated areas, follow all posted instructions and remove PPE in the order prescribed (if questions arise, ask RADCON personnel).
- Conduct whole body personal survey when exiting the contaminated area, then proceed directly to the personal contamination monitor.
- Report all wounds or cuts (including scratches and scrapes) before entering radiological contaminated areas. Avoid or protect/guard sharp objects that could lead to a cut or puncture.
- Wash hands and face before eating, drinking, smoking, or other activity that may provide a pathway for contaminants.
- Utilize company-issued safety glasses that can be worn inside a respirator.

6.4 Avoiding Nonradiological Contaminant Exposure

Each contaminant has distinct physical, chemical, and mechanical properties that determine its toxicity. Threshold-limit values (TLVs), established to provide guidelines in evaluating airborne and skin exposure to these contaminants, represent levels and conditions under which it is believed that nearly all workers may be exposed daily without adverse health effects. Based on these TLVs, specific action limits have been established (Section 8) to further limit the potential for approaching these contaminant TLVs.

Potential exposure pathways for radiological contamination and nonradiological contaminants are the same. The same engineering controls employed to eliminate or mitigate airborne radioactivity will serve to control nonradiological airborne contaminants. Every effort will be made to isolate the source of these hazards through engineering controls and confinement, where feasible. Some of these contaminants pose other exposure hazards from contact and skin absorption and avoidance practices will serve to minimize the potential for exposures. Methods of exposure avoidance at the WAG 1 OU 1-07B projects include:

- Collecting samples directly into bags to isolate the source of contamination
- Wearing all required PPE and changing as necessary
- Containerizing samples in shipping containers to avoid handling twice
- Minimizing contact time with known or suspected burn pit media
- Doffing PPE in a manner to prevent the spread of contamination

- Washing hands and face before eating, drinking, smoking, or any other activity that may provide a pathway for contaminants.

6.5 The Buddy System

The buddy system will be used on WAG 1 OU 1-07B projects when personnel have entered into the EZ and/or radiological buffer area (RBA). The buddy system requires each employee to assess and monitor his or her buddy's mental and physical well-being during the course of the workday. A buddy must be able to:

- Provide assistance
- Verify the integrity of PPE
- Observe a partner for signs and symptoms of heat stress, cold stress, or contaminant exposure
- Notify other personnel in the EZ if emergency assistance is needed.

Workers need to be able to see or hear and effectively communicate with their buddy at all times when in the EZ. The FTL or FCC will assign a buddy to each person on the project. The HSO and PM will periodically check to ensure that this process is in place and that employees understand their roles and responsibilities.

7. PROJECT CONTROL AND SECURITY

Work zones at the project will be established based on the known, expected, and potential levels of radiological and chemical contamination present at the project. Entry into and exit out of project work zones will be controlled through the appropriate use of barriers, signs, and other measures (refer to *INEEL Safety and Health Manual*, MCP-2714, "Safety Signs, Color Codes, and Barriers," and PRD-3001, "Radiological Control Requirements for INEEL Construction"). The work area will be identified as a CERCLA area and will have established exclusion zones (as necessary). Contamination reduction corridors will be established as necessary, based on decontamination requirements and levels of contaminants of potential concern. Personnel not directly involved with project activities will be excluded from entering work zones. Nonfield team members, such as inspectors, may be admitted provided they are on official business, escorted by the FCC, or HSO, and have met visitor training requirements in accordance with Section 4 of this HASP.

HAZWOPER work zones will include: exclusion zones (EZ), contaminant reduction zones (CRZ) and support zones (SZ). The HSO, IH, or RADCON personnel will assist the FCC in establishing the EZ, CRZ, and SZ for the project based on IH exposure assessment (EA), site characterization, and RADCON radiological evaluations. The FCC and HSO, with RADCON personnel consultation if the area is a posted radiological control area, will determine the visitor's need for access beyond the SZ. Visitors may not be allowed beyond the SZ unless they meet the training requirements in Table 4-1 for "Support Personnel."

Figure 7-1 illustrates a sample of the appropriate zones that will be established at OU 1-07B work areas, and is not intended to provide an exact layout, position of all equipment, or zone sizes. Changing field conditions may warrant reconfiguring the layout, size, and orientation of these controlled areas. Changes in zone configuration and size will be the decision of the HSO, in conjunction with the IH, RCT, FTL, and FCC, based on the IH exposure assessment, site characterization, and RADCON radiological evaluations.

Potential radiological and nonradiological hazards (including industrial safety hazards) will both be evaluated when initial zone locations and sizes are delineated. Barriers may be used to delineate both radiological and nonradiological work-zone postings, depending on the nature and extent of contamination. Barriers will be posted according to both sets of requirements (29 CFR 1910.120 and 10 CFR 835) with appropriately colored rope and postings. These zones may change in size and location as project tasks evolve, as site monitoring data are assessed, and as wind direction changes. Additionally, entrances and exits may be changed, based on these same factors.

In general, equipment used to treat hazardous waste, e.g., an air stripper located in the NPTF, is an exclusion zone. Other areas within OU 1-07B facilities are support zones. Fenced-off areas that establish the extent of the CERCLA site are support zones and personnel must contact the FCC prior to entry. During routine groundwater sampling events, the FTL has the responsibility to control visitor and personnel access to the sampling equipment and well head. Barriers will not typically be installed during sampling activities. The FTL will decide if barriers are needed during nonroutine sampling activities and will work with the IH or HSO to establish when and where barriers are needed.

If establishment of a radiological control area is required at a WAG 1 OU 1-07B project, TAN RADCON personnel will post and delineate the area in accordance with the *BBWI Radiation Protection Manual*, MPC-187, "Posting Radiological Control Areas."

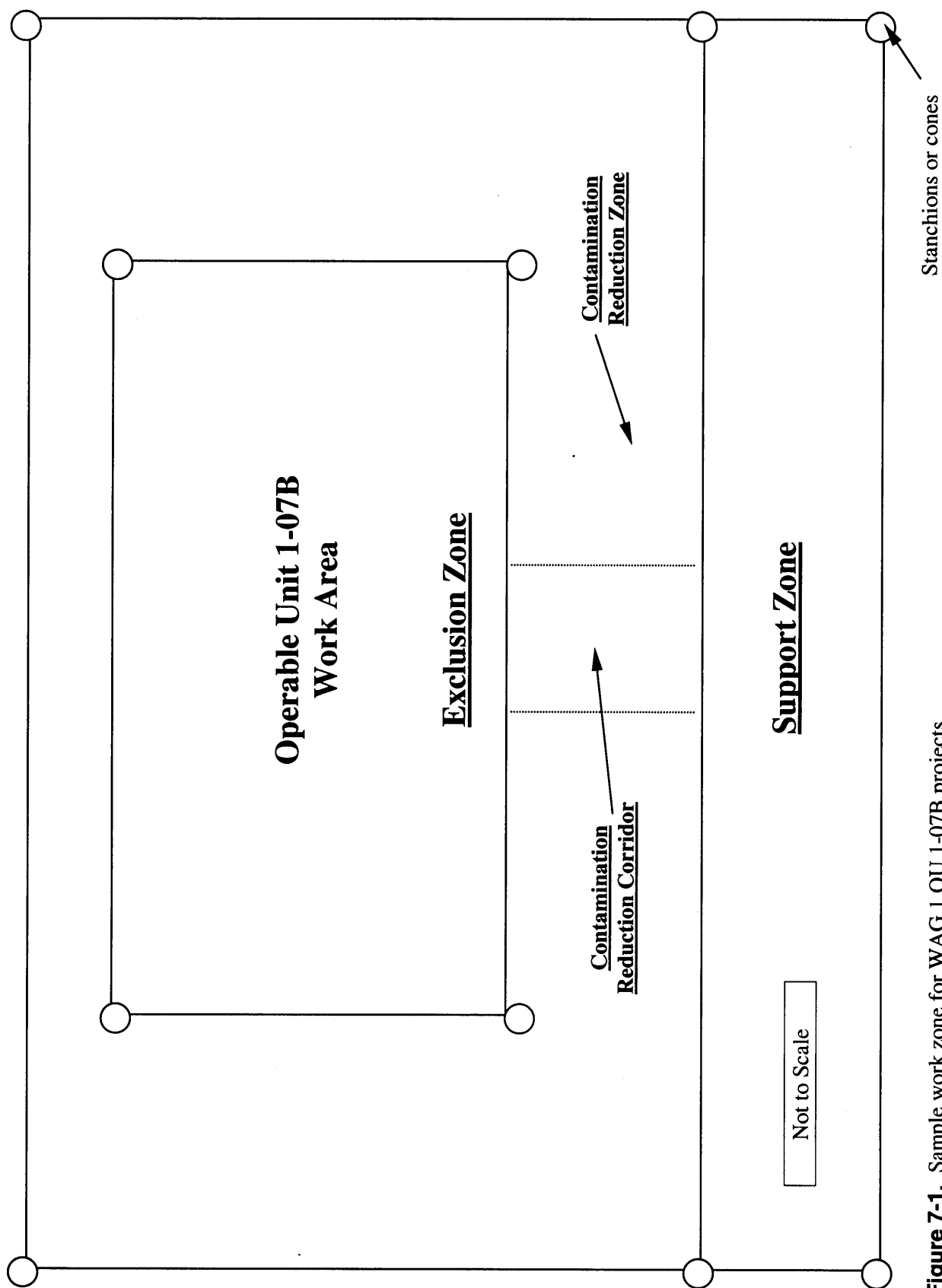


Figure 7-1. Sample work zone for WAG 1 OU 1-07B projects.

7.1 Exclusion Zone

The EZ will be large enough to encompass the established boundary of the applicable work area. The minimum number of personnel required to safely perform the project tasks will be allowed into the EZ. The EZ is a controlled access zone at all times. A sign-in/-out board or log will be used to track EZ entry and exit. The EZ boundary will be delineated with rope or printed hazard ribbon. Nonproject Visitors or other untrained personnel are not permitted in the EZ.

Factors considered when establishing the EZ include air monitoring data, radiological contamination data, radiation fields, equipment in use, the physical area necessary to conduct project operations, and the potential for contaminants to be blown from the area. The boundary may be expanded or contracted as this information becomes available. All personnel who enter the EZ will be trained (Table 4-1, e.g., FCC, FTL, Sampler, HSO, or occasional worker) and will wear the appropriate level of PPE for the degree and type of hazards.

7.2 Contamination Reduction Zone and Corridor

The CRZ and contamination reduction corridor (CRC) are transition areas surrounding the EZ, located between the EZ and SZ. The CRZ and CRC will buffer and further reduce the probability of SZ contamination. The CRC will encompass an area large enough to allow emergency vehicle traffic. Personnel and equipment entering and exiting the EZ will transition through the CRC. The CRZ and CRC may serve as staging areas for equipment and temporary rest areas for personnel. PPE and sample packaging and preparation equipment will be stored in the SZ. Restricting traffic to these controlled areas will minimize the transfer of contaminating substances from personnel, equipment, or in the air. Untrained visitors are not permitted in the CRZ.

A nonradiological decontamination pad may be established if it is believed that residual nonradiological contamination is present on equipment following release from the contaminated area. The project IH will be responsible for resolving nonradiological contamination issues and the most appropriate decontamination methods. A designated portion of the CRC will be established for the nonradiological decontamination of equipment, if required. All decontamination supplies (nonradiological decontamination solution and Teriwipes) and used nonradiological PPE and debris waste containers may be located in the CRC.

7.3 Support Zone

The SZ will be considered a “clean” area. The location of the SZ will be upwind of the EZ, where possible, and readily accessible to the nearest road. The SZ is a controlled area outside the CRZ. Support facilities/vehicles, vehicle parking, additional emergency equipment, extra PPE, and stored monitoring and sampling equipment may also be located in the SZ. Visitors must either receive project-specific HASP training or they must be escorted by trained project personnel to enter the SZ.

The WAG 1 OU 1-07B project work zones will be maintained during off-hours and weekends. These zones and areas will remain intact until all project tasks have been completed and equipment and supplies have been decontaminated and removed from the project. The FCC, HSO, and RCT will ensure that project zones are posted and intact when leaving the project and will be responsible for breaking down the zones when project activities have been completed.

7.4 Designated Eating and Smoking Area

Ingestion of hazardous substances is likely when workers do not practice good personal hygiene. It is important to wash hands, face, and other exposed skin thoroughly after completion of work and before smoking, eating, drinking, and chewing gum or tobacco. **Smoking, chewing, eating, applying lip balm, and drinking are not allowed within the EZ, CRC, or CRZ.**

If radiological control areas are established, all personnel who enter the radiological control area **must** complete a minimum of a hand and foot survey (frisk) **prior** to exiting. All personnel are to wash their hands prior to eating or smoking. Personnel are to comply with all TAN smoking policies, including disposing of smoking materials in the proper receptacle.